

U.S. Application No. 09/675,908
Filed September 29, 2000

Amendments to the Specification:

The specification is amended by striking the heading on page 1 incorrectly indicating that the application is a provisional application. A corrected page 1 is enclosed herewith. The specification is further amended by labeling Fig. 9 "Prior Art." A corrected drawing will be timely provided.

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**METHOD AND SYSTEM FOR SIMULATING A
HYDROCARBON-BEARING FORMATION**

5 This application claims the benefit of U.S. Provisional Application No.
60/159,035 filed on October 12, 1999.

FIELD OF THE INVENTION

 This invention relates generally to simulating a hydrocarbon-bearing
formation, and more specifically to a method and system for simulating a
10 hydrocarbon-bearing formation under conditions in which a fluid is injected into the
formation to displace resident hydrocarbons. The method of this invention is
especially useful in modeling the effects of viscous fingering and channeling as the
injected fluid flows through a hydrocarbon-bearing formation.

BACKGROUND OF THE INVENTION

15 In the primary recovery of oil from a subterranean, oil-bearing formation or
reservoir, it is usually possible to recover only a limited proportion of the original oil
present in the reservoir. For this reason, a variety of supplemental recovery techniques
have been used to improve the displacement of oil from the reservoir rock. These
techniques can be generally classified as thermally based recovery methods (such as
20 steam flooding operations), waterflooding methods, and gas-drive based methods that
can be operated under either miscible or immiscible conditions.

 In miscible flooding operations, an injection fluid or solvent is injected into the
reservoir to form a single-phase solution with the oil in place so that the oil can then